

REMARKS

In response to the Examiner's Detailed Action, by this Amendment claims 1-41 remain in this application.

In the Office Action, the Abstract of the disclosure is objected to because the term "comprised" is considered a legal term and is not appropriate in the abstract. We agree with the Examiner and the required correction has been made.

Claims 12 and 26 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. These claims have been amended to now contain subject matter which was described in the specification.

The Examiner has recommended that the claim language in claim 1 "wherein the improvement comprises" be removed. The undersigned has amended claim 1 and removed this language.

Claims 1-41, as understood by the Examiner, have been rejected under 35 U.S.C. 102(b) as being anticipated by Hauser US 3,591,126. Applicant respectfully disagrees with the Examiner for the following reasons. The Hauser reference relates to a diaphragm operated valve, which are quite distinct from the valve assembly in the present invention. Diaphragm valves must be manually adjusted, will only respond to pressure signals, and do not automatically or proportionally respond to a significant change in pilot flow. Further, the pressures to which the diaphragm will respond are limited by its range spring characteristics.

A further distinction of the present invention from the Hauser reference is that the Hauser adjustable stem (81) controls the rate of **opening and closing**. The throttling member (33) (or the altering cross-sectional area of the orifice), in the present invention is enabled to match the fluctuating flow rate through the pilot device at **all** positions (indefinitely) between the open and closed positions of the main valve. The axial extent of the throttling member (33) is adjusted and the flow rate through the cross sectional area of the orifice matches the flow rate through the pilot device to position the valve

anywhere between the open and closed position. This differs from Hauser's control over the opening and closing rate. As Hauser points out (in Col. 4, lines 65-69), "It is important to cause the valve to close slowly so that the inertia of the otherwise suddenly stopped column of pressure fluid will not cause a momentarily great increase of pressure to the extent that serious damage may be done to the entire piping or conduit system." This closing utility is also pointed out in Col. 5, lines 18-20, "Such flow rate of valve **closing** being directly proportionate to the rate of fluid flow through the hollow valve stem". Further this closing feature is highlighted in Col. 5, lines 41-44 with "The stem 81 is therefore a stationary timing stem which can be adjusted to cause different rates of valve closure under given pressure differentials between the inlet chamber 18 and outlet chamber 19".

The present invention brings out the feature of matching the pilot flow rate at all positions between open and close with the throttling member (33). Specifically on page 10, lines 7-12: "As the opening becomes greater when piston 22 moves inwardly, more pilot fluid is needed to continue to force piston 22 inwardly since more fluid is allowed to pass through the increasing annular orifice opening. This effectively increases the difference between the pilot fluid flow needed to just barely open modulating plug 20 and the pilot fluid flow needed to fully open modulated plug 20". Again on page 11, lines 7-9: "As the pilot device increases the fluid flow, forces from the fluid flow will cause piston 22 to move further inwardly, thus gradually increasing the cross-section of piston orifice 40." This brings out that the gradual alteration of the cross sectional area of the orifice controls the valve position at all stages. This highlights that the present invention is based on a variable feed rate controlling a variable outlet rate.

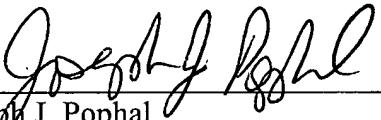
Further in our claims, a noted difference is addressed between the present invention and the Hauser patent. In claim 1, line 11-12, the throttling member is "adapted to insure a gradual alteration in the **cross-sectional area of said orifice**". Hauser relates to the "adjustable fluid flow path means". The "flow path means" is the helical groove portion 88 or (as state in Hauser, Col. 5, lines 27-29) "the **distance** fluid must flow through the helical groove within the valve stem." This is far different from

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the cross-sectional opening in the orifice of the present invention. Further, the cross-sectional opening of the orifice affects the valve position at all stages.

In light of the above, it is respectfully submitted that claims 1-41 are distinct from Hauser and are in condition for allowance. Prompt notice to that effect is respectfully requested. Nevertheless, should the Examiner continue to believe otherwise, the Examiner is kindly requested to contact the undersigned attorney by telephone, should the Examiner believe it would result in a furtherance of this matter.

Respectfully submitted,



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